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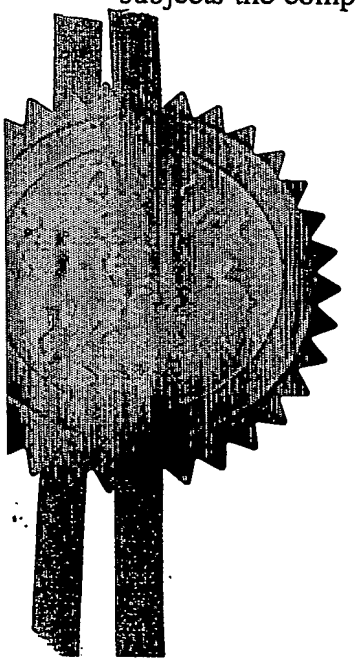

Signed

Dated 9 October 2003

GB0219563.4

By virtue of a direction given under Section 30 of the Patents Act 1977, the application is proceeding in the name of

EXTEC SCREENS AND CRUSHERS LIMITED,
Incorporated in the United Kingdom,
~~Fountain Precint~~,
Balm ~~Green~~,
~~SHEFFIELD~~,
~~South~~ Yorkshire,
~~S1 1RZ~~,
United ~~Kingdom~~

[~~ADP No.~~ 08630493001]

HEARTCOTE ROAD
SWADLINCOTE
DERBYSHIRE
DE11 9DY
UNITED KINGDOM

ADP = 08608176001

GB0219563.4

By virtue of a direction given under Section 30 of the Patents Act 1977, the application is proceeding in the name of

BROOMCO (3113) LIMITED,
Incorporated in the United Kingdom,
Hearthcote Road,
Swadlincote,
DERBYSHIRE,
DE11 9DU,
United Kingdom

[ADP No. 08630477001]

GB0219563.4

By virtue of a direction given under Section 30 of the Patents Act 1977, the application is proceeding in the name of

EXTEC INDUSTRIES LIMITED,
Incorporated in the United Kingdom,
Hearthcote Road,
Swadlincote,
DERBYSHIRE,
DE11 9DU,
United Kingdom

[ADP No. 08630469001]

Patents Form 1/77

Patents Act 1977

22 AUG 2002

The Patent Office

1/77

2280602 E742925-1-002835
P01/7700 0.00-0219563.4

Request for grant of a patent

(see the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

THE PATENT OFFICE
G
22 AUG 2002
NEWPORT

The Patent Office

Cardiff Road
Newport
South Wales NP10 8QQ

1. Your reference

WMO/P200312

2. Patent application number
(The Patent Office will fill in this part)

0219563.4

3. Full name, address and postcode of the applicant *(underline all surnames)*

Extec Industries Plc

Hearthcote Road
Swadlincote
Derbyshire
DE11 9BT

SECTION 30(1977 ACT) APPLICATION FILED 7/5/03

Patents ADP number *(if you know it)*

8007254001

If the applicant is a corporate body, give the country/state of its incorporation

GB

4. Title of the invention

MOBILE 3-PART CRUSHER ASSEMBLY

5. Name of your agent *(if you have one)*

URQUHART-DYKES & LORD

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

Tower House
Merrion Way
Leeds LS2 8PA
United Kingdom

Patents ADP number *(if you know it)*

1644004 ✓

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day/month/year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day/month/year)*

8. Is a statement of Inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*
a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
See note (d))

Yes

Patents Form 1/77

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Continuation sheets of this form	
Description	6
Claim(s)	-
Abstract	-
Drawing(s)	8 +8

10. If you are also filing any of the following, state how many against each item.

Priority documents	-
Translations of priority documents	-
Statement of Inventorship and right to grant of a patent *(Patents Form 7/77)*	-
Request for preliminary examination and search *(Patents Form 9/77)*	-
Request for substantive examination *(Patents Form 10/77)*	-
Any other documents *(Please specify)*	-

11. I/We request the grant of a patent on the basis of this application.

Signature URQUHART DYKES & LORD

Date 21 August 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

W M ORR – 0113 245 2388

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MOBILE 3-PART CRUSHER ASSEMBLY

This invention relates to a mobile 3-part crusher assembly, of which a first part is a feeder unit or section, a second part is a crusher unit or section, and a third part is a discharge unit or section.

In use, bulk raw material to be crushed is supplied to the feeder section and which feeds the raw material to the crusher section, which breaks up the raw material into crushed material, and which then delivers the crushed material to the discharge section and which discharges the crushed material to a stockpile.

One or both of the crusher section and the discharge section may include a screening device to separate unwanted material, e.g. too large or too small fragments from the crushed material, so that the material discharged to the stockpile can be in a predetermined size range.

It is known to provide small/medium size crusher plant assemblies in which the three separate components (feeder, crusher and discharge unit) are incorporated in a single vehicle, i.e. they are mounted on a common chassis of the vehicle (directly or indirectly), and such a vehicle being self-propelled so as to be manoeuvred on site, e.g. a quarry site, so as to receive a bulk supply of raw material and to discharge crushed raw material to a required stockpile.

A self propelled crusher therefore can be easily manoeuvred on site, but when it is required to move the crusher to another site, it is usually necessary to load the crusher onto a low-loader and for it to be transported along the public highway to a new site. Evidently, even a small/medium size self-propelled crushing plant is of substantial size, i.e. length wise, transversely and by height, and there are practical limits to the size of plant which can be transported along the public highway, assuming that the plant cannot readily be broken down into smaller separate sections, or be adjusted to take up a transport mode in which the overall "envelope" of the plant is substantially reduced in size.

The present invention, in one aspect, has been developed primarily in connection with a crusher assembly of substantial size, and which is too large to be transported along the public

highway without first being broken down into two or more separate sections which can be individually loaded, transported and unloaded by more than one transport vehicle.

According to one aspect of the invention, there is provided a mobile 3-part crusher assembly of which a first part is a feeder section for receiving a bulk supply of raw material, a second part is a crusher section to receive raw material from the feeder section, and a third part is a discharge section to receive crushed material from the crusher section and to discharge the crushed material to a required stockpile:

in which the first, second and third parts of the crusher assembly are detachably connectable to work together in a crushing mode, and to be separated from each other for individual handling and transport in a transport mode of the assembly.

Any suitable detachable couplings may be provided to enable the crusher section to be coupled with, and uncoupled from, the feeder section, and to be coupled with, and uncoupled from, the discharge section.

The invention is also, in a second aspect, concerned with a 3-part crusher assembly which has improved manoeuverability on site when it is required to work in a crushing mode.

According to a second aspect of the invention, there is provided a mobile 3-part crusher assembly of which a first part is a feeder section for receiving a bulk supply of raw material, a second part is a crusher section to receive raw material from the feeder section, and a third part is a discharge section to receive crushed material from the crusher section and to discharge the crushed material to a required stockpile:

in which the crusher section is pivotally connected to the discharge section, and the feeder section and the discharge section are manoeuvrable independently of each other, so as to facilitate overall manoeuverability of the assembly on site.

Preferably, the crusher section has two separate articulated connections to the discharge section, defining pivot axes which extend approximately perpendicular to each other when the assembly is standing on level, horizontal ground.

A first articulation may therefore allow transverse relative steering movement between the discharge section and the remainder of the assembly (the crusher section and the feeder section) and a second articulation (defining a transverse axis extending generally parallel to the ground and perpendicular to the direction of forward travel), allows relative upward or downward pivoting between the discharge section and the remainder of the assembly, so as to follow undulations in the surface of the ground over which the assembly is travelling.

Preferably, each of the feeder section and the discharge section is supported by a respective pair of endless tracks, and which are independently operable, preferably being provided with their own power sources.

Conveniently, the crusher unit is a jaw-type crusher device and which is detachably coupled with the feeder section via a rigid coupling which allows the crusher section to be mounted in a cantilever manner on the feeder section to be moveable therewith as a unit, for the purposes of:

(1) loading and unloading the crusher section with reference to a loading platform of a transport vehicle; and

(2) coupling and uncoupling the unit with the discharge section via a detachable coupling between the crusher section and the discharge section.

A preferred embodiment of mobile 3-part crusher assembly according to the invention will now be described in detail, by way of example only, with reference to the accompanying drawings, in which:

Figures 1(a) and 1(b) are side and plan views of a mobile 3-part crusher assembly according to the invention, of which a first part is a feeder section, a second part is a crusher section, and a third part is a discharge section, all coupled together to work in a crushing mode;

Figure 2 is a side view, similar to Figure 1, but showing the assembly adjusting itself to follow a different contour of ground to that shown in Figure 1(a);

Figure 3 is a side view of the first feeder section part, after separation from the assembly, and in a transport position on a load platform of a transport vehicle;

Figure 4 is a similar view, but of the second crusher section, after separation from the assembly, and loaded on the loading platform of another transport vehicle;

Figure 5 is a similar view, showing the third discharge section, after separation from the assembly and loaded on the loading platform of a still further transport vehicle;

Figure 6 is a side view showing the first feeder section moving over the ground so as to take up a position in which it can attach and lift the crusher section off the low loader and form a combined unit which is capable of being presented to the arrival of the third discharge section, to complete the assembly of the three component parts;

Figure 7 is a side view showing the rigid two part assembly of the feeder section and the crusher section, being presented to the discharge section for coupling together to form a 3-part crusher assembly; and

Figure 8 is a side view showing the three sections assembled together, and raised from the ground, with their propelling tracks out of contact with the ground, and able to carry out a cycle of feeding raw material to the crusher, crushing the material, discharging the crushed material to the discharge section, and then delivering the crushed material to a stockpile at a required position.

Referring first to Figures 1 and 2 of the drawings, a mobile 3-part crusher assembly according to the invention is designated generally by reference 10, of which a first part 11 is a feeder section for receiving a bulk supply of raw material, a second part 12 is a crusher section to receive raw material from the feeder section 11, and a third part 13 is a discharge section to receive crushed material from the crusher section 12 and to discharge the crushed material to a required stockpile.

Figure 1(a) shows the 3-part assembled crusher adjusting itself to follow a transition in the ground between level ground and a slight hill, and Figure 1(b) is a plan view showing how the assembly can steer itself, by relative pivoting movement between the foremost discharge section 13 and the rigid coupling-together of feeder section 11 and crusher section 12.

Figure 2 shows how the assembly adjusts itself to follow a different ground contour.

The first, second and third parts of the crusher assembly are detachably connectable together to work in a crushing mode, as shown in Figure 8, and to be separated from each other for individual handling and transport, in a transport mode of the assembly, as shown in Figures 3 to 7.

Any suitable detachable couplings are provided to enable the crusher section 11 to be coupled with and uncoupled from the feeder section 12. Similarly, detachable couplings are provided between the crusher section 12 and the discharge section 13.

In addition to the facility to uncouple the sections from each other allowing easy handling and transport of individual sections on their own transport vehicle, when assembled, the assembly provides for improved manoeuverability on site, when working in a crushing mode, or in moving from one position to another position on site preparatory to carrying out renewed crushing operations, and discharge to a new stockpile.

The crusher section 12 is pivotally connected to the discharge section 13 via two separate articulated joints, one of which allows relative pivoting about a transverse axis extending generally parallel to the ground surface and perpendicular to the direction of travel, so as to allow the assembly to adjust itself automatically in following different ground contours, as shown in Figures 1(a) and Figure 2. There is a second articulated joint which defines a generally upright pivot axis, when the assembly is standing on level, horizontal ground, to allow relative steering between the foremost section 13 and the coupled-together sections 11 and 12, as shown in Figure 1(b).

Each of the feeder section 11 and the discharge section 13 can be manoeuvred independently of the other, so as to facilitate overall manoeuverability of the assembly on site. Each unit is therefore supported from the ground by a pair of endless tracks, and preferably each chassis is provided with a separate power source.

The crusher unit 12 is a jaw-type crusher device, and which is detachably coupled with the feeder section 11 via a rigid coupling which allows the crusher section to be mounted

in cantilever manner on the feeder section, to be moveable therewith as a unit, for the purposes of:

1. loading and unloading the crusher section 12 with reference to a loading platform of a transport vehicle; and

2. coupling and uncoupling the unit (sections 11 and 12 coupled together rigidly) with the discharge section 13 via a detachable coupling between the crusher section 12 and the discharge section 13.

Figures 3 to 7 show how the separated sections of the 3-part crusher assembly can be transported individually, and then subsequently reassembled.

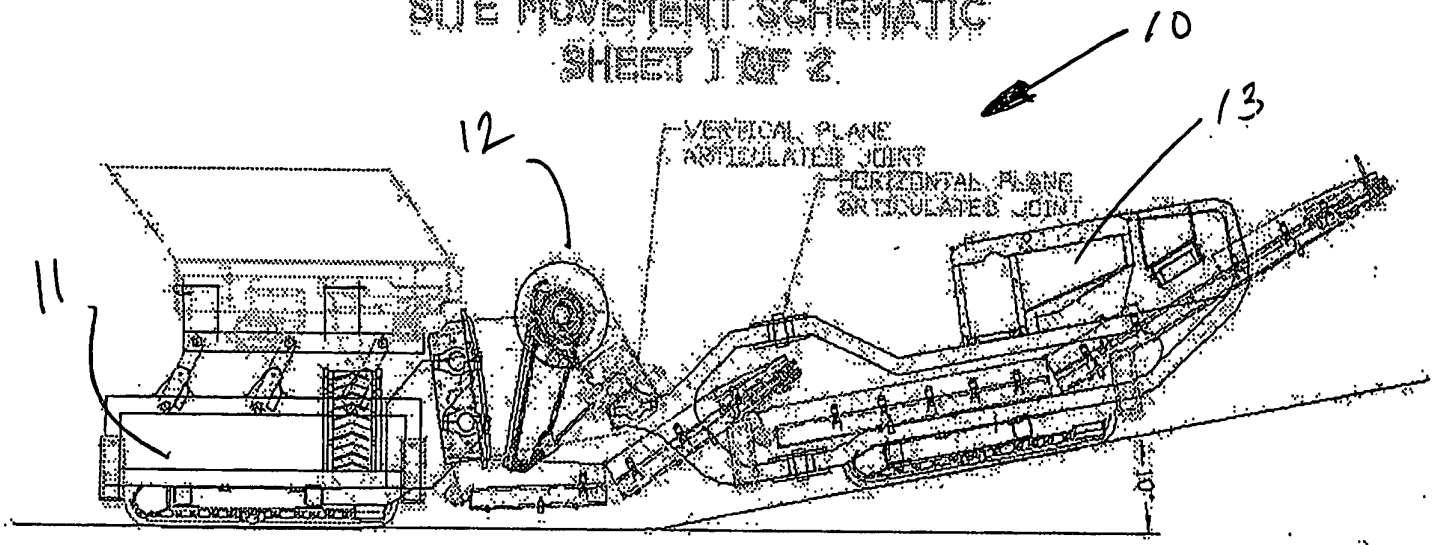
Figure 8 shows the three component parts assembled together, and raised out of contact with the ground, so as to carry out a static crushing and discharge operation.

EXTEC SCREENS AND CRUSHERS

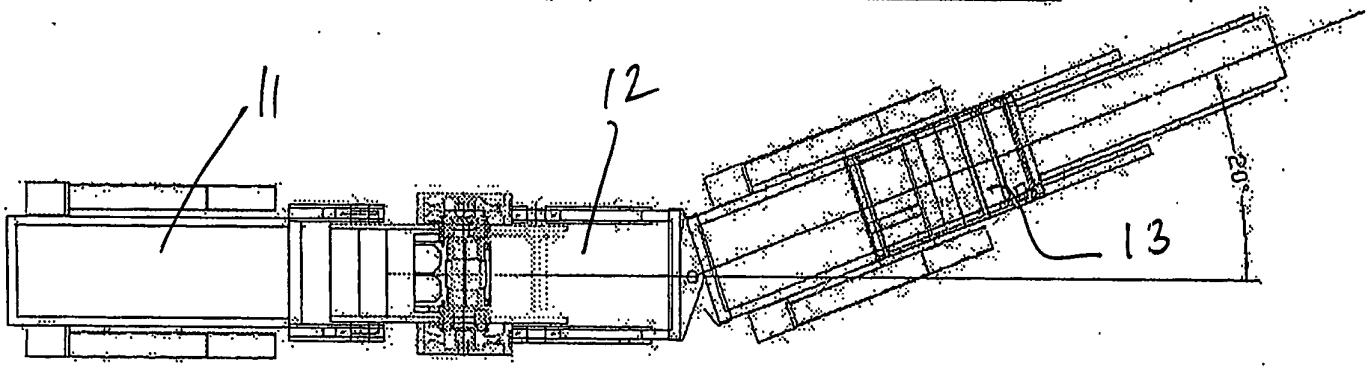
Extec Screens and Crushers Limited
A subsidiary of Extec Industries plc

EXTEC C13 ARTICULATED MOBILE JAW CRUSHER SCHEMATIC
SITE MOVEMENT SCHEMATIC
SHEET 1 OF 2

a)



b)



Due to our Design Department constantly seeking ways to improve our products we reserve the right to alter specifications at our discretion.

FIG 1

EXTEC SCREENS AND CRUSHERS

Extec Screens and Crushers Limited
A subsidiary of Extec Industries plc

EXTEC C13 ARTICULATED MOBILE JAW CRUSHER SCHEMATIC
SITE MOVEMENT SCHEMATIC
SHEET 2 OF 2

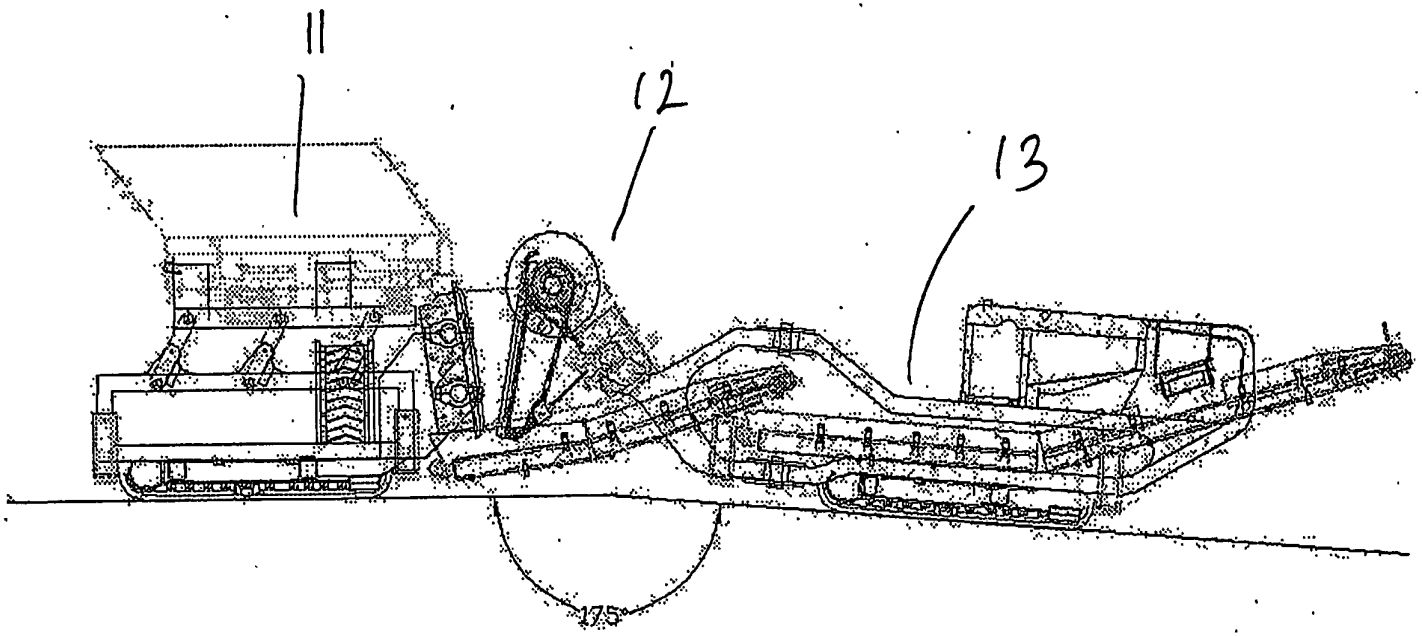
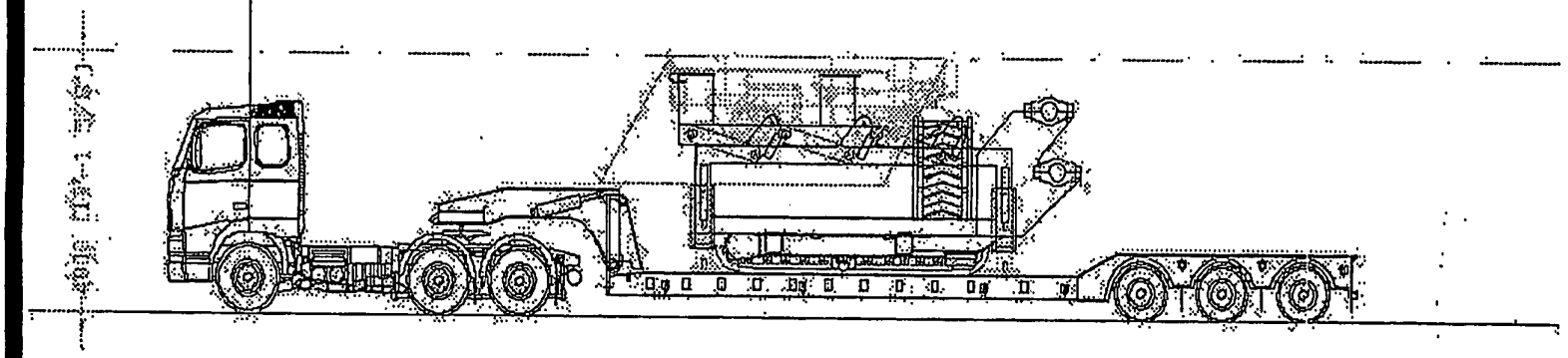


FIG. 2

EXTEC SCREENS AND CRUSHERS

Extec Screens and Crushers Limited
A subsidiary of Telsmith Inc.

EXTEC C/S ARTICULATED MOBILE JAW CRUSHER SCHEMATIC
SHEET 1 OF 6



FEEDER SECTION 1 IN TRANSPORT POSITION

(1)

FEEDER SECTION 1 IN TRANSPORT POSITION

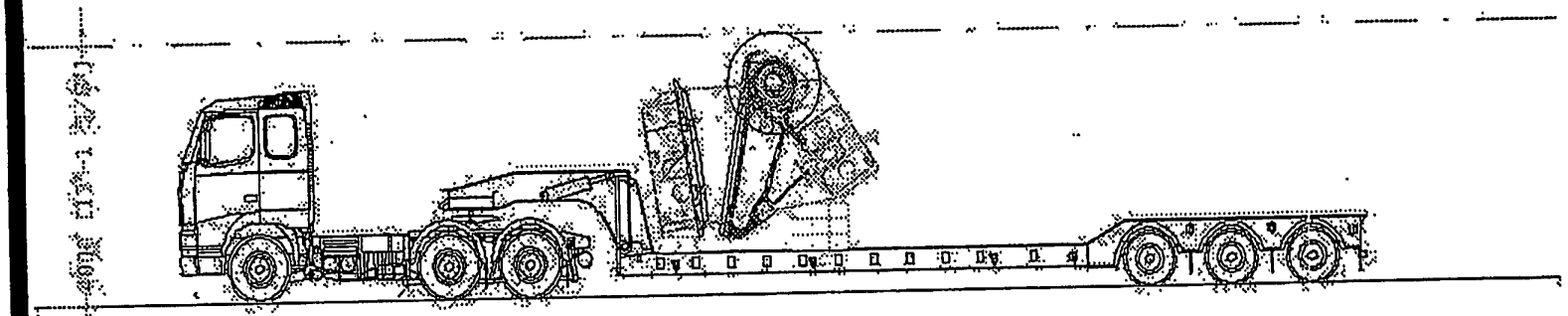
Due to our Design Department constantly seeking ways to improve our products we reserve the right to alter specifications at our discretion.

FIG. 3

EXTEC SCREENS AND CRUSHERS

Extec Screens and Crushers Limited
A subsidiary of Extec Enterprises plc

EXTEC C15 ARTICULATED MOBILE JAW CRUSHER SCHEMATIC
SHEET 2 OF 6



CRUSHER SECTION 2 IN TRANSPORT POSITION

CRUSHER (2) SECTION IN TRANSPORT POSITION

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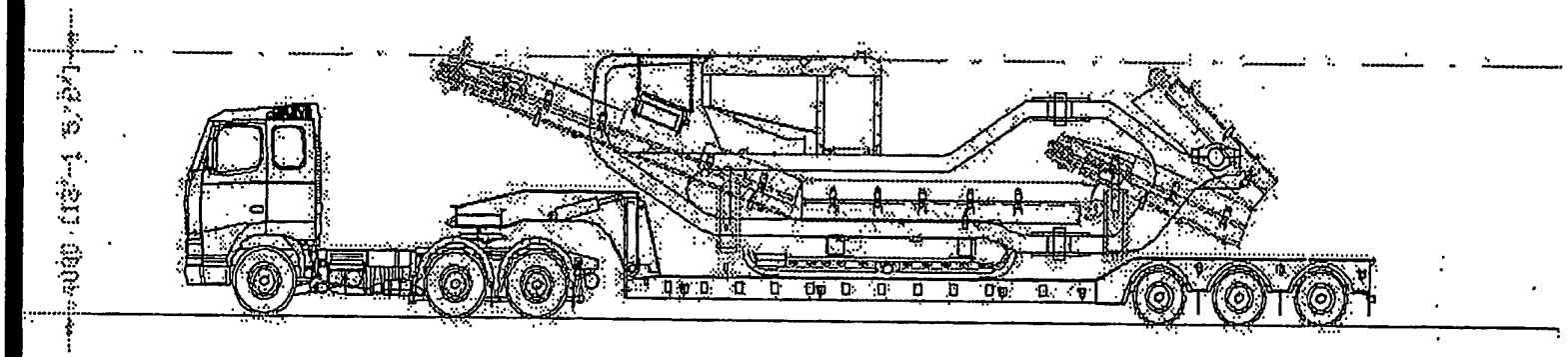
FIG. 4

EXTEC SCREENS AND CRUSHERS

Extec Screens and Crushers Limited
A subsidiary of Terex Industries plc

EXTEC C6 ARTICULATED MOBILE JAW CRUSHER SCHEMATIC
SHEET 3 OF 6



DISCHARGE SECTION IN TRANSPORT POSITION

(3)

DISCHARGE SECTION IN TRANSPORT POSITION

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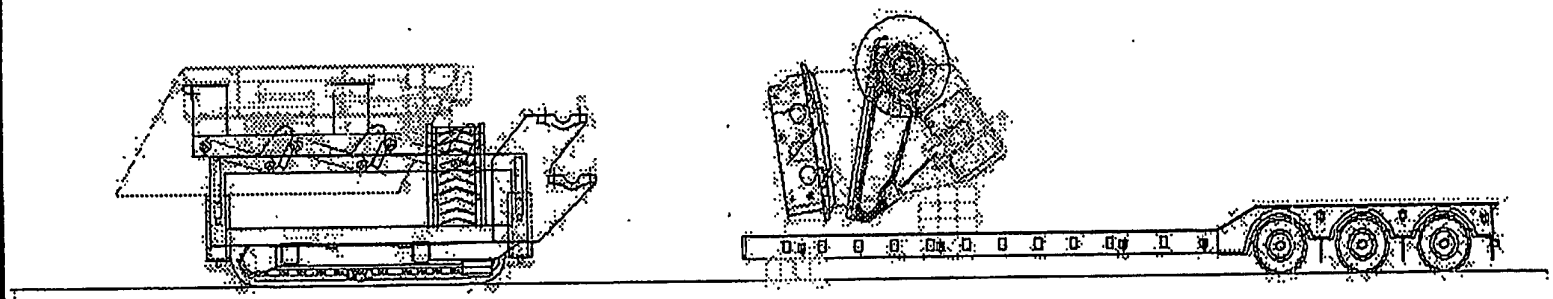
FIG. 5

EXTEC SCREENS AND CRUSHERS

Extec Screens and Crushers Limited
A subsidiary of Extec Industries plc

EXTEC C15 ARTICULATED MOBILE JAW CRUSHER SCHEMATIC
SHEET 4 OF 6



FEEDER SECTION 1 TRACKS INTO POSITION TO ATTACH AND LIFT
CRUSHER SECTION 2 OFF THE TRAILER.
WHEN SECTION 2 IS ATTACHED THEN THE COMBINATION
CAN THEN TRACK ITSELF INTO POSITION AND AWAIT
THE ARRIVAL OF DISCHARGE SECTION 3.

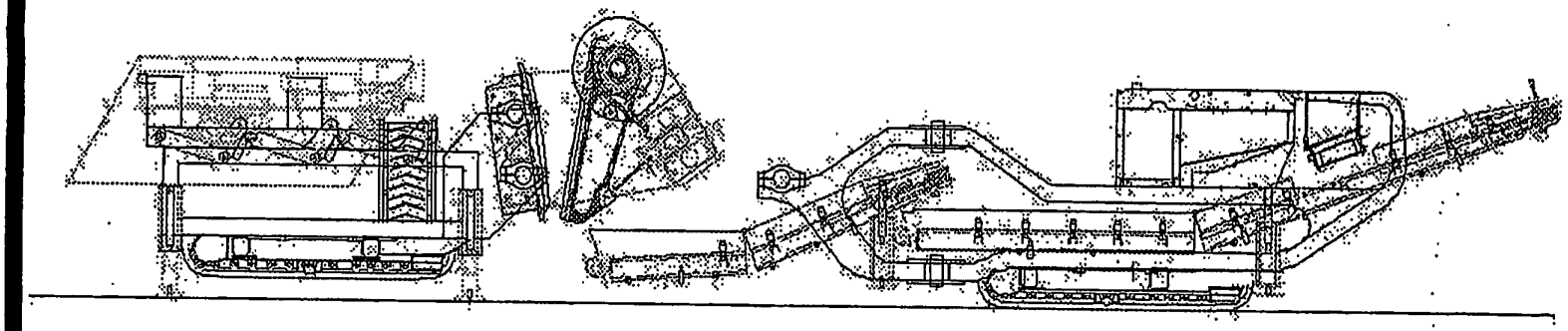
Due to our Design Department constantly seeking ways to improve
our products we reserve the right to alter specifications at our discretion.

FIG. 6

EXTEC SCREENS AND CRUSHERS

Extec Screens and Crushers Limited
A subsidiary of Telsmith Industries plc

EXTEC C15 ARTICULATED MOBILE JAW CRUSHER SCHEMATIC
SHEET 5 OF 6



WITH THE FEED AND HOPPER SECTION IN TRANSPORT POSITION SECTION 1 SUPPORTS CRUSHER SECTION 2 THE COMBINATION LIFTS TO ALLOW DISCHARGE SECTION 3 TO TRACK UNDER AND ATTACH.

DISCHARGE SECTION 3 TRACKS INTO POSITION AND LIFTS TO CONNECTS TO CRUSHER SECTION 2

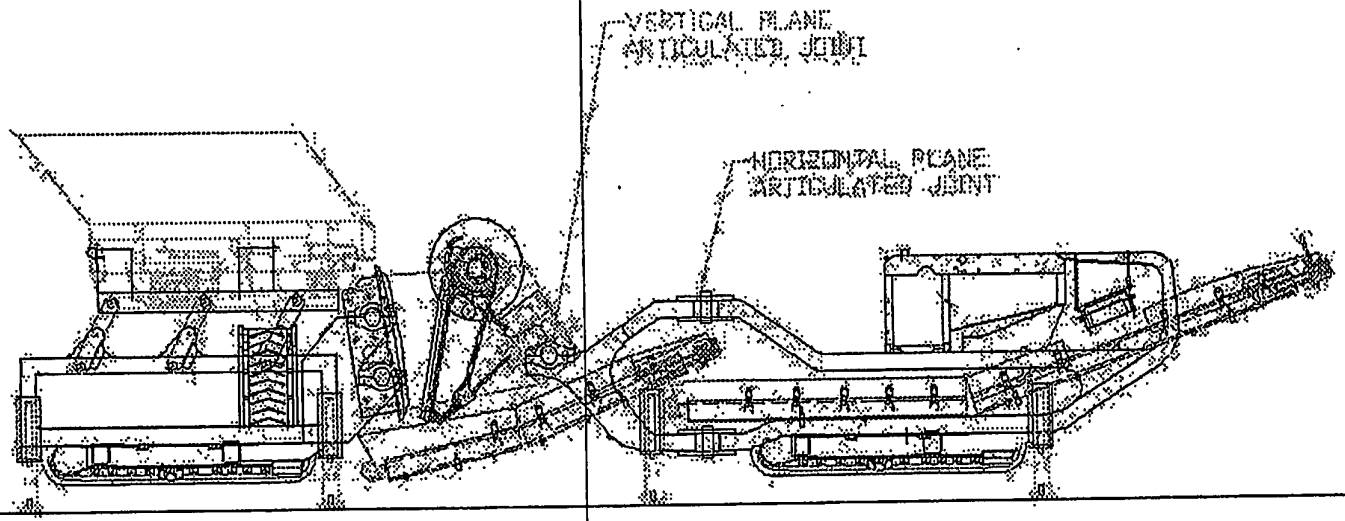
Due to our Design Department constantly seeking ways to improve our products we reserve the right to alter specifications or our designs.

FIG. 7

EXTEC SCREENS AND CRUSHERS

Extec Screens and Crushers Limited
A subsidiary of Extec Industries plc

EXTEC C15 ARTICULATED MOBILE JAW CRUSHER SCHEMATIC
SHEET 6 OF 6



WHEN ALL THREE SECTIONS ARE CONNECTED THEY ACT AS ONE COMPLETE SUPPORT CHASSIS
THE FEEDER SECTION CAN THEN BE RAISED INTO POSITION AND THE HOPPER DOORS OPENED
THE DISCHARGE SECTION CAN THEN UNFOLD THE RADIAL STACKING CONVEYOR.
THE COMPLETE ASSEMBLY CAN THEN BE TRACKED AS ONE UNIT AROUND THE SITE.
THE ARTICULATED JOINT ALLOWS THE COMPLETE SYSTEM TO MANOUVER MORE FREELY
AND GIVES THE DISCHARGE CONVEYOR RADIAL STACKING CAPABILITIES.

Due to our Design Department constantly seeking ways to improve
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FIG. 8

PCT Application

GB0302855

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